NextGen IT
Business Analyst
Curriculum Path

(Contract: NextGen IT Assessment contract #35274)

May 9, 2013

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BUSINESS ANALYST CURRICULUM PATH INTRODUCTION

SAIC is pleased to provide this Business Analyst CP document for review by OIR and the selected SMEs in order to facilitate further discussion about the training and labs that would support the NextGen IT objective of improved IT deliverables.

This Curriculum Path for the Business Analyst (BA) job classification represents the knowledge, skills, and abilities (KSAs) and tasks associated with the new State of TN job classifications. The CP also reflects input, suggestions, and feedback from State IT Subject Matter Experts (SMEs), and in consideration of IT Industry Best Practices. The following is a summary of the themes that came out of the SME workshop.

- Many people who are serving as Business Analysts today did not start out to be BAs but they moved into these roles as the benefits of BA methodology and practices became evident in their State Agency, Department, or Office.
- Some IT professionals serve in BA roles with limited to no formal training about how to use BA processes and core skills to bring value to the customer and the State. They manage based on their technical expertise or their business focus. BAs generally have a 'focus' either in the technology or in the business. Knowledge, skills and abilities in both areas are needed to support State projects and BA training must cross-train personnel.
- As important as technical and business expertise are to project success, even more important for the BA is for them to be particularly strong in communication, critical thinking, decision making, and active listening. Without these skills and abilities BAs will not be effective.
- In the past few years, there has been a stronger emphasis on PMO functions within some State agencies where they have established PMOs. The State also introduced BSD to provide PM and BA support for the State's larger, more complex projects. This Tennessee Business Solutions Methodology (TBSM) is a core strategy for the State to structure and bring process and tools and resources to projects to improve solutions selected, and mitigate the risk of solutions negatively impacting Agency business and/or constituents due to poor analysis of business need and solutions that do not address the business need.
- A strong message from the SMEs is the need to establish a culture of informed and engaged IT project teams and break-up the 'silo' mentality that currently exists. Training should promote team communication, collaboration, respect for roles, and awareness of the inter-connectivity of the project tasks.
- Ultimately, Business Analysts will be able to use the Curriculum Path to:
  - o Remediate and/or reinforce foundational KSAs required for Business Analysts by completing training required in the associate levels.
  - o Develop and demonstrate the knowledge, skills, and abilities required to perform the tasks relevant to their job classification and level.
  - o Develop KSAs to prepare to move into a more advanced Business Analyst level.
  - o Develop the 'cross-training' KSAs that will improve team work, communication, understanding, and ultimately improve deliverables.

This Curriculum Path is presented in a chart format. Job Classification levels are displayed in rows along the left-hand side of the chart (Associate, Junior, Intermediate, and Senior). All of the training and learning activities that make up the curriculum path are organized into one of five Areas of Competency needed to develop well-rounded IT Professionals (Technical, Organizational / Process, Communications, Professional Reasoning, and Administration / Management / Leadership). These Areas of Competency are displayed across the top of the chart. The related courses and learning activities are displayed in these columns according to their relevant job classification level and in the recommended order of completion.

Curriculum Path Format

	AREAS OF COMPENTENCY				
	Technical Training	Organizational / Process Training	Communication Training	Practical Reasoning Training	Administration / Management / Leadership Training
Information Systems Associate Level					
Junior Level					
Intermediate Level					
Senior Level					

Five Areas of Competency to Develop Well-Rounded IT Professionals

The Business Analyst is a unique job classification that requires persons to be extremely well developed in all areas to the degree that they are completely integrated and actively use all of their knowledge, skills and abilities in all aspects of their work. They are the most integrated of the job classifications. Their Core training must train them to integrate these areas. No one area of competency is considered secondary to their success.

Technical: The technical courses provide the Business Analyst with the knowledge, skills and abilities to understand what technology can do and what it can't do. Training will develop knowledge in this area to give a BA a strong base of understanding of computer systems so they can assist in identifying possible solutions for the customer's business needs; know how to monitor for solution changes and issues that could negatively impact the Agency's business and /or constituents; and communicate fluently with the customer about the impact of technology on their business objectives. BAs are always looking at technology through the lens of what is best for the customer's business. In addition, BAs who are primarily focused on technology can look to other Curriculum Paths for additional course work in their area of focus.

Organizational / Process: BAs must become experts in State and Agency governance and operations. They will become expert at working with PMs and the Agency's personnel (leaders, project sponsors, possible users, SMEs) following the Tennessee Business Solutions Methodology. They will learn methods and tools for enterprise analysis, requirements elicitation, analysis, communication, validation, management and planning. They will understand approaches that should be used to assess solution validity and monitor for

changes to the solution that will negatively impact the customer's business and / or constituents. They will be able to assess organizational readiness, planning for and supporting the Agency through-out the project implementation process, coordinating with training expert and the implementation team; and help the Agency / State evaluate the solution performance. They will learn the standard software development processes and project management processes. In addition, BAs will be given opportunity to develop knowledge and skills in the areas of business process analysis, business process re-engineering, and business process improvement, organizational change management, and enterprise strategy and planning.

Communication: Communication is critical for BAs. These courses will include written and verbal technical communication, active listening, verifying understanding, customer service, and team building. Emphasis is given to developing interpersonal skills that are to be used to create strong collaborative working relationships with all project stakeholders, and include skills for dealing with conflict, negotiation, and facilitation.

Practical Reasoning: Courses in this area of competency will increase and improve upon the BA's ability to actively and skillfully conceptualize, apply, analyze, synthesize, and/or evaluate information gathered. This is very important for the BA who must develop their ability to translate information given into requirements that can be further analyzed, defined and managed to develop the desired solution and validate solution effectiveness.

Administration / Management / Leadership: Leadership courses will cover the knowledge, skills, and abilities that are necessary to manage work and to motivate and support individuals and teams to complete project tasks and objectives. It will cover the concepts and techniques to develop Business Acumen. It will specifically cover the way the State of Tennessee operates, the specifics of policies, state and federal legislation, public safety and privacy, State Agency operations, existing technology, business and constituency needs and challenges, industry awareness, understanding of what is working in other states, and understanding of what is workingwith other technologies.

Comprehensive Competency Development and Verification

A significant objective for the NextGen IT transformation is to develop well-rounded IT professionals who can work together to deliver high quality, effective, timely technology products and services to State Government and the people of Tennessee. Facilitators will use teaching methods that will maximize the State IT Professional's opportunity to practice, apply, and perform during the class so that the student leaves the classroom and returns to their work place fully prepared to use the new learning in their work. The desired training delivery approach will include instruction and demonstration activities, guided exercises and practice activities, and competency verification activities.

The importance of dynamic, interactive competency verification cannot be overstated. Every course regardless of the type (instructor-led, computer-based, facilitated workshops,) will provide students with at least one competency verification activity or 'lab.' These labs will require the participants to apply the knowledge, skills, and abilities gained to execute a course related task. A written exam may be used as a competency verification activity; however, the desire is for students to use and apply new knowledge, skills, and abilities prior to leaving the class. This may be accomplished through independent assignments on the computer such as writing code or through activities that requires the students to work together to identify the best technical solution, solve a problem, or produce a product.

These competency verification activities are a core strategy of the new training curriculum, aimed at instituting continuous opportunities to verify, build upon, and improve competency. The expectation is for

the student to integrate learning from all five Areas of Competency as they progress through the curriculum path. Competency verification can and should include a requirement for students to use KSAs, obtained in previous classes. Students will understand this expectation and facilitators will be responsible to ensure that they are working to support this objective through their classroom, lab, and workshop activities.

Final Competency Verification Lab
In order to complete verification of competency for each job classification level, and /or to move into another job classification it is recommended that IT professionals pass a final competency lab that will be facilitated by working professionals with appropriate skills and subject matter knowledge. This competency lab will require the participants to use knowledge, skills, and abilities from all five Areas of Competence.

Approach to the Business Analyst Curriculum Path

Integrated Core BA Courses
Business Analysts are required to actively and simultaneously use knowledge, skills, and abilities that cross all area of competency when carrying-out any of their primary job duties. The industry standard competency models for BAs consistently present these areas of competency as inter-related to a much higher degree than in models for other IT job classifications. In keeping with that perspective, Core BA courses are presented in the CP as inter-related courses that cross all Areas of Competency.

Two Professional Tracks for a BA
In order to address the findings of the interviews with SMEs and group discussions regarding the BA KSAs, SAIC recommends the State provide courses that will help BAs further expand either their technical or business knowledge, skills, and abilities. Since the job classification relies upon the use of inter-related skill sets the CP will identify courses that would develop competencies in both tracks without specifying courses that are required for either track (as in the Developer and DBA CPs).

Addition of the Associate Business Analyst Role:
Typically a person who will perform as a BA is someone with some year of experience either in management or technical work of some kind but rarely is someone able to start out as a Business Analyst and therefore the Associate level was not included in the KSAs. However, after some discussion with the SMEs, and in consideration of how to represent the type of expertise a person should have to become a Junior Level BA, it was decided that SAIC should represent the Associate level in the CPs provided. The Associate level is an entry level IT person who shows an interest in and aptitude for the kinds of work a Business Analyst would do. The Associate curriculum presented here is designed to build some core knowledge and competencies as managers are evaluating the person's aptitude for the Business Analyst role. It is assumed that Associate BAs would not carry out BA tasks such as requirements gathering independently but they might help capture information during business needs assessment activities, assist with elicitation meeting logistics, compiling information from surveys, and other tasks as they are able.

BUSINESS ANALYST CURRICULUM PATH

The Curriculum Path Charts will provide an overview of the courses and learning activities for each level. To view the Course Outline for a specific course, click the course title.

Information Systems Associate

	Technical Training	Organizational / Process Training	Communication Training	Practical Reasoning Training	Administration / Management / Leadership Training
Information Systems Associate	Software Development Orientation	State of TN IT Professional Orientation Modules	Resources for Improving Communication Knowledge and Skill	Resources to Improve Practical Reasoning	Performing Cultural Assessment
	Improving Skills using Microsoft Professional Tools	Fundamentals of TN Standard Software Development Processes	Customer Service Principles and Processes		
		Personal Organization and Time Management			
	Associate Business Analyst Learning Lab				
	Associate Business Analyst Competency Lab				

Junior Business Analyst

	Technical Training	Organizational Process Training	Communication Training	Practical Reasoning Training	Administration / Management / Leadership Training
Junior Business Analyst	Business Analyst Fundamentals				
	Business Analyst Project Resources and Tools				
	Designing to Maximize Customer Satisfaction	TN IT Governance and TBSM	Becoming a Strong, Confidant, Service-Oriented Communicator	Judgment, Decision, and Analysis	MS Project
	System Analysis Basics				Learning to Teach and Mentor Others
	Junior Business Analyst Competency Lab				

Intermediate Business Analyst

	Technical Training	Organizational Process Training	Communication Training	Practical Reasoning Training	Administration / Management / Leadership Training
Intermediate Business Analyst	Advancing Skills and Abilities for Working with Requirements				
	Introduction to Relational Database Design		Improving understanding between technical and non-technical project stakeholders		Team Building
					Law and Government
	Intermediate Business Analyst Competency Lab				

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Senior Business Analyst

Senior Business Analyst	Technical Training	Organizational Process Training	Communication Training	Practical Reasoning Training	Administration / Management / Leadership Training
	System Analysis for complex, inter-related technologies	Business Process Improvement and Re-engineering	Conflict Management and Negotiation	Collaborative Troubleshooting / Problem Solving / Decision Making	Advanced Human Resources and Labor Relations Issues
			Advanced Team Dynamics		Public Safety and Privacy
					Advancing Your Business Acumen
	Senior Business Analyst Competency Lab				

INTEGRATED BUSINESS ANALYSIS COURSES

Business Analyst Fundamentals

This course will provide participants with a comprehensive look at the core knowledge, skills, and competencies used by BAs to perform their job responsibilities. There will be a heavy emphasis on requirement elicitation, analysis, communication and validation as the core emphasis of the course but these activities will be presented in along with the full flow of BA activities within a project.

Duration: 4 days

Learning Objectives

Upon completion of the course, participants will be able to:
• Identify and explain the BA's role and primary tasks
• Demonstrate the ability to carry out basic tasks associated with each phase of a project
• Have an understanding of the tools and methods that are applicable to each phase
• Identify the just-in-time resources that are available to use as they need to carry out BA tasks in the workplace.

Course Outline

• Introduction to Business Analysis , Planning and Monitoring
• Resources including Business Analyst Body of Knowledge and State of TN Business Analyst Resources
• Requirements Management and Planning
• Enterprise Analysis
• Requirements Elicitation
• Requirements Analysis
• Requirements Communication
• Solution Assessment and Validation
• Underlying Competencies

Participants will be given the opportunity to work on exercises and tasks together to practice some of the core techniques described in the course. The training will continuously provide examples of application of tools, approaches, and underlying competencies to connect the knowledge with how it is applied.

Business Analyst Project Resources and Tools

Too often there is a need for training, guidance, and 'How-to' information as a project is getting underway that there is no time to schedule a few days of training. BAs need a set of computer-based resources that they can go to when needed to refresh themselves regarding a specific BA task, specifics of how to use a tool, or technique for requirements gathering or analysis, or translating customer / stakeholder requirements into functional and non-functional requirement. BA Resources are computer-based resources that the BA can access when needed. These tools will supplement and enhance the classroom training and labs. Content should be based on BABOK™, PMBOK™, and TN practices and lessons learned. This should not be limited only to general knowledge, but it should be put into the context of the State IT Governance and TBSM.

Content will include resources like:
• Review of how to
    o Assist Agency with Documenting Business Need and Preliminary Business Case
    o Plan Business Analysis Approach
    o Plan BA Activities
    o Plan BA Communication
    o Plan Requirements Management Process

- o   Prepare for Elicitation
- o   Conduct, document, and confirm elicitation activities
- o   Assess Capability Gaps
- o   Determine Solution Approach
- o   Develop / Refine Project Charter
- o   Collect Requirements
- o   Prioritize and Organize Requirements
- o   Specify and Model Requirements
- o   Manage Requirements Traceability
- o   Verify and Validate requirements
- o   Maintain requirement for re-use
- o   Define Assumptions and constraints
- o   Utilize Economics and Accounting Practices
- o   Validate, define solution and scope
- o   Manage solution scope and requirements
- o   Create work breakdown structure
- o   Identify Risks, perform risk analysis and response
- o   Prepare Requirements Package
- o   Communicate Requirements
- o   Assess Proposed Solution
- o   Allocate Requirements
- o   Assess Organizational Readiness
- o   Define Transition Requirements
- o   Evaluate Solution Performance
- o   Utilize UML Modeling Notation

- • Techniques for
    - o   Benchmarking
    - o   Brainstorming
    - o   Business Rules Analysis
    - o   Creating a Data Dictionary and Glossary
    - o   Data Flow Diagrams
    - o   Data Modeling
    - o   Decision Analysis
    - o   Document analysis
    - o   Estimation
    - o   Focus Groups
    - o   Functional Decomposition
    - o   Interface Analysis
    - o   Interviewing
    - o   Identifying and using Lessons Learned
    - o   Metrics and Key Performance Indicator
    - o   Non-functional requirements analysis
    - o   Observation
    - o   Organization Modeling
    - o   Problem Tracking
    - o   Process Modeling
    - o   Prototyping
    - o   Requirements Workshops
    - o   Risk Analysis
    - o   Root Cause Analysis
    - o   Scenarios and Use Cases
    - o   Scope Modeling

- o Sequence Diagrams
- o State Diagrams
- o Structured Walkthrough
- o Survey Questionnaire
- o SWOT Analysis
- o User Stories
- o Vendor Assessment

Advancing Skills and Abilities for Working with Requirements

These three courses are designed to expand on the BAs experience and ability to better create and work with requirements. The recommendation is for BAs to eventually take all three of these courses. To manage costs and time away at training, managers can be encouraged to work with the BA to identify which course to take first and when to take the next courses.

Understanding and Documenting Current and Proposed Business Processes / Requirements

This course will help BAs identify and document the essential businesses and business rules for a policy or system. Students will learn and use proven techniques to identify and define essential business processes within the scope of a project and then detail them into coherent functional requirements. They will learn when to apply specific techniques and how detailed to get for various audiences.

Duration: 2 days

Learning Objectives

Upon completion of this course, attendees will be able to:

- Understand and document a business environment using standard modeling techniques
- Use techniques and tools to elicit business information and document business processes and business rules
- Dig beyond a current process to understand the true business objective (not how it's currently done but why is it done, and is it relevant to the desired state?)
- Identify the desired business impact of a desired state and look for opportunities to ensure the new business processes is optimized for those objectives.
- Document the desired state business processes and develop the functional requirements that specify how users will interact with a new interface and how the system will respond.
- Create consistent, detailed use cases.
- Use UML diagrams and other notations to capture desired business processes and workflows.
- Look for options and alternatives that will add value for the business and communicate these to customers and end users.
- Look for risks within process designs and requirements that might negatively impact the business or its constituents.
- Validate business processes against available data and create new data requirements as needed.

Course Outline

- Introduction to Business Process Analysis
- Introduction to User Requirements
- Introduction to System Requirements
- Using UML to Describe Processes and Systems
- Business Process Re-Engineering
- Introduction to Gap Analysis
- The "Use Case" as a System Description Tool

- How information is related to Business Processes and Policies

Understanding and Documenting Business Data Requirements

This course is about how to organize, analyze, and document requirements for programmers and other technical persons. Participants will learn to identify all data requirement, detail data requirements, and work with technical personnel to ensure complete, usable requirements documentation.

Duration: 2 days

Learning Objectives

Upon completion of this course, attendees will be able to:

- Identify all the types of data that must be addressed in a project; where each type comes from and how it is used
- Know how data requirements are used to determine the best design for the database.
- Recognize the data requirements embedded in each level of requirements (Business, Stakeholder, Functional, Non-functional, Transition) and in Business Rules.
- Defined data requirements to the appropriate level of detail
- Create Data Flow Diagrams to assess the feasibility and impact of a proposed solution
- Identify what Data Flow Diagrams and Data Modeling techniques are useful as planning and validation tools
- Create and maintain a Data Dictionary.
- Use data model techniques and methods to confirm AS IS and TO BE data requirements.
- Engage technical personnel of various roles for the creation of data requirements documents.
- Validate data requirements for quality testing and solution acceptance

Course Outline

- Overview of relational database modeling to describe data
- Overview of relational database design and representation
- Expression of data specification from User Requirements
- Introduction to Data Flow Diagrams
- Understanding Data Dictionary and MetaData descriptions of data
- Test procedures for data and data processes
- Data quality descriptions and validation
- Documentation of data representations and designs

Requirements in an Agile World

This course is important to help the State ensure Agile project teams have proper requirements management in place while maintaining the Agile approach.

The International Institute for Business Analyst (IIBA) is developing an 'Agile Extension to the BABOK® Guide'. This course will provide instruction and guidance for BAs regarding how to work with customers and technical teams who are invested in the Agile approach to development using the BABOK Agile guide as the foundation of the course.

Duration: 2 days

Learning Objectives

Upon completion of this course, attendees will be able to:

- Understand the practice of business analysis in an agile context
- Map existing business analysis techniques to agile practices
- Utilize techniques that are specific to the practice of business analysis in the agile world
- Define the strategic criteria for the completion of the project
- Ensure that stakeholders have a shared understanding of those goals, objectives, and requirements
- Ensure and, if necessary, refine project requirements to maintain cohesion with the business needs, organizational goals and objectives
- Identify, manage and mitigate risk early in the project

Course Outline

- Introduction to the Agile Extension
- Business Analysis in Agile Lifecycles
    - Scrum
    - Extreme Programming (XP)
    - Kanban
    - Comparison of Agile Lifecycles
    - Agile Levels of Planning
- Knowledge Areas
    - Mapping Techniques to Knowledge Areas
- Techniques
    - See the Whole
    - Think as a Customer
    - Analyze to Determine What is Valuable
    - Get Real Using Examples
    - Understand What is Doable
    - Stimulate Collaboration & Continuous Improvement
    - Avoid Waste

TECHNICAL COURSE DESCRIPTIONS

The technical courses are designed to:
- Cross-train Business Analysts who do not already have a technical background in software development, maintenance, operations, and/or IT infrastructure. It is important for BAs to know some basic technical concepts, to understand the lifecycles and methodologies used by the technical teams, and to recognize the benefits and limitations of IT solutions for their customers.
- Provide training for BAs in Microsoft Office products that are used by BAs to perform basis activities such as writing project documentation, scheduling meetings, preparing presentations, sharing documents with the project team, working with spreadsheets, work breakdown schedules, network resources and etc.
- Provide advanced Technical track courses for those BAs who are focused on the technical realm of IT rather than the business realm.

Software Development Orientation

This class has a wealth of knowledge that non-technical BAs need to understand as they move into the Business Analyst job duties. This course consists of topics such as: hardware and software components of a computer system, the CPU, registers, operating systems, processes, number systems, data type formats, conversions among number bases, logic and reasoning, flow charting, pseudo code, control structures, differentiation among programming languages, from machine language to assemblers and compilers, data structures, libraries, networking, web programming, and a host of other topics. After learning the fundamentals, students will be given a chance to show their knowledge by writing some simple to intermediate programs in the Java programming language.

Duration: 2 to 3 Days

Audience: Non-technical developers, BAs, and others who need an introduction to software development.

Learning Objectives

Upon completion of this course, attendees will be able to:

- List the major components of a computer system
- Differentiate between various kinds of computer storage
- Distinguish between system software and application software
- List the steps in the instruction/execution cycle
- Differentiate between various kinds of programming language translators and programming paradigms
- Convert from and to the following bases: binary, octal, decimal, and hexadecimal
- Demonstrate how negative numbers are stored in memory
- Demonstrate how various data types are stored in memory
- State the difference between a program and a process
- Use various graphical techniques, such as flow charting and pseudo code, to specify the logic of a program
- Read BNF notation that describes correct grammar for a programming language
- Compose, compile and run a simple Java application

Course Outline

- Introduction
  - What is a Computer System?
  - Input Units
  - Output Units
  - Memory
  - Software

- o Components of the CPU
- o Instruction Execution Cycle
- o Cache
- o Functions of an Operating System

- Programming Languages
  - o Introduction
  - o Machine Language
  - o Assembly Language
  - o Compilers
  - o BNF
  - o Procedural vs. Object Oriented
  - o Scripting vs. Non-Scripting
  - o Choosing a Programming Language

- The Programming Cycle
  - o The Software Development Cycle
  - o The Programming Cycle - Overview
  - o Edit
  - o Compile
  - o Execute

- Number Systems and Data Types
  - o Number Bases
  - o Base 10
  - o Base 2
  - o Base 8 and Base 16
  - o Conversion Between Number Bases
  - o Data Types
  - o Negative Numbers
  - o Complement Arithmetic
  - o Floating-Point Values
  - o String Data

- Programming Skills
  - o Spoken Languages vs. Programming Languages
  - o Problem Solving
  - o Mathematics – Order of Operations
  - o Flow Charting
  - o Pseudo Code

- Java Introduction
  - o What is Java?
  - o History
  - o Versioning
  - o The Java Virtual Machine
  - o Writing a Java Program
  - o Packages
  - o Simple Java Programs

- Java Language Components
  - o Primitive Data Types
  - o Comments
  - o The for Statement

- o   The if Statement
- o   The while and do while Statements
- o   The switch Statement
- o   The break Statement
- o   The continue Statement
- o   Operators
- o   Casts and Conversions
- o   Keywords
- User Interfaces
    - o   Interfaces
    - o   Character Based - Command Line
    - o   Character Based - Interactive
    - o   Graphical User Interfaces
    - o   Client/Server Computing
    - o   Web Based Applications
- Troubleshooting

Lab Exercises: Given a simple business process, the attendee will pseudo code a solution and further code the solution in Java using the language components presented in the class.

Improving Skills using Microsoft Professional Tools

Microsoft Office Tools

This is a set of Free Microsoft CBTs that will assist personnel 'just-in-time' with their user of Microsoft Professional Office products including Includes Word, Excel, PowerPoint, Outlook, Access, Lync, OneNote, Project, SharePoint, Visio, Office 365 for business, Communicator, and Live Meeting.

Duration: varied

Learning Objectives

Upon course completion, attendees will be able to:

- Complete tasks necessary for business analysis using the appropriate Microsoft tools.

Course Outline

- Defined by Microsoft as presented at: http://office.microsoft.com/en-us/training-FX101782702.aspx

Using SharePoint

Just-in-time, computer-based training personnel can access at any time in order to improve their knowledge and skills of SharePoint basic tasks for end users. Included in the free resources like what is available from Microsoft,
- How to upload, check-out, edit, and check-in documents that the team is sharing.
- How to manage versions.

Designing to Maximize Customer Satisfaction

This course is an introduction to visual software design concepts including user interface design considerations, creating applications that meet ADA standards, and an introduction to style sheets. It prepares the IT software developer to provide quality services for the customer/end-user. Topics include: identifying stakeholders, managing expectations, user acceptance testing, communication, and post-implementation evaluation.

Duration: 2 or 3 Days

Learning Objectives

Upon completion of this course, attendees will be able to:

- Identify the stakeholder/customer
- Manage expectations
- Create a prototype for a given application
- Understand the importance of user acceptance testing
- Create a user interface that meets ADA minimum standards
- Create a user interface that operates properly regardless of platform
- Create a user interface that meets user requirements
- Create a user interface that has proper navigational controls
- Create a user interface for the desktop environment
- Create a user interface for the internet
- Perform a post-implementation evaluation

Course Outline

- Who is the Customer?
    - o Stakeholders/Customers
- Managing Expectations
    - o Communication with the Stakeholder
    - o Developing Prototypes for Stakeholder Approval
        - ▪ Why prototype?
        - ▪ Types of prototypes
        - ▪ How to create a prototype
- User Acceptance Testing
    - o What is UAT?
    - o When should it be done?
    - o What should be done with the results?
- Introducing human-computer interaction
    - o What is a user interface?
    - o Attributes of a good interface
    - o Leveraging our cognitive skills
    - o Leveraging our perceptual skills
    - o ADA Standards
- Introducing user-centered design
    - o User-centered design
    - o Design iteration
    - o Analysis phase
    - o Design phase
    - o Verification phase
- User interface design principles
    - o Attributes of a good interface
    - o Map to the user's mental model
    - o Be consistent
    - o Provide control
    - o Provide feedback
    - o Recover gracefully
    - o Provide flexibility
- Navigation
    - o How to create a task flow diagram
    - o Five navigational structures
        - ▪ Sequential navigation
        - ▪ Hierarchical navigation

- - - Star navigation
    - Grid navigation
    - Network navigation
    - Hybrid navigation
  - Application interfaces
    - Primary window
    - Secondary windows
    - Menus
    - Controls
    - Toolbars
    - Status bar
    - Input: General
    - Input: Mouse Input
    - Input: Keyboard
    - Interaction: Selection operations
    - Interaction: Editing operations
    - Interaction: Transfer operations
    - Windows user assistance and help
    - Writing for desktop applications
    - Platform specifics
  - Web interfaces
    - Client-server explained
    - Client-server performance issues
    - Introduction to Style Sheets
    - Web visual design
    - Links
    - Platform or browser
  - Post-Implementation Evaluation
    - What information should be gathered?
    - Implementing Changes
    - Documenting for Future Projects

Lab Exercises: Attendees will be presented with examples of both good and poor GUIs without distinction. They will determine what is appropriate and effective and what is poor design and ineffective. Given a simple project, attendees will create a prototype of the interface. Attendees will create a simple style sheet for a given project.

System Analysis Basics

This course is an introduction to analysis and evaluation of systems. Topics include: technology design, business requirements, business processes and quality control. Using best practice standards, the learner will evaluate various portions of the SDLC deliverables for appropriate content, efficiency, and effectiveness.

Duration: One Day

Learning Objectives

Upon completion of this course, attendees will be able to:

- Recognize effective hardware design
- Identify measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system
- Participate in equipment selection
- Recognize effective business requirements and know what to do when they are lacking
- Effect change in inferior business processes
- Plan for quality control through UAT and other methods

Course Outline

- Technology Design Analysis
  - Determining Delivery Method
  - Assessing Hardware Requirements
  - Evaluating Hardware Design Alternatives
  - Cost/Benefit Analysis
  - System Testing Techniques
- Systems Evaluation
  - Identifying Measures or Indicators of System Performance
  - Determining Actions Needed to Improve or Correct Performance
- Operations Analysis
  - Analyzing Needs and Project Requirement to Create a Design
- Business Requirements Analysis
  - Types of Requirements Errors
  - Actions to Take When Requirements are Lacking
  - Characteristics of Well-Written Requirements
  - Requirements and the Development Lifecycle
  - Identifying Constraints and Benefits
- Business Processes Analysis
  - Determining Best Practice
  - Obtaining Feedback for Improvement
  - Developing an Improvement Plan
  - Gaining Approval for Change
- Quality Control Analysis
  - Planning for Quality
  - Acceptance Sampling (User Acceptance Testing)
  - Quality Improvement Methods and Tools

Lab Exercise: The exercises for this course will be group centered case scenarios in each of the areas covered. Attendees will identify examples given as having good or poor qualities in the identified area. Groups will also create a sample improvement plan for a simple process; develop a simple cost/benefit analysis for a small project; and develop several well-written business requirements.

Introduction to Relational Database Design

Topics in this course include: designing, building and querying a relational database; capturing the structure of an existing database with a CASE tool; developing a data model to describe an application's data; applying normalization to data for effective, stable database design, and accessing data in a relational database using simple SQL queries. Basic database design includes data normalization, primary/foreign key constraints and indexes.

Duration: 2 Days

Lesson Objectives

Upon completion of this course, attendees will be able to:

- Design, build and query a relational database
- Capture the structure of an existing database with a CASE tool
- Develop a data model to describe an application's data
- Apply normalization to data for effective, stable database design

- Access data in a relational database using simple SQL queries

Course Outline

<u>Introduction</u>

- An overview of DBMS technology
    - How data is accessed, organized and stored
    - The database development process
- DBMS and related user tools
    - Query and application development tools
    - CASE tools for database analysis and design

<u>How a Relational DBMS Works</u>

- Relational technology fundamentals
    - Tables, attributes and relationships
    - Primary and foreign keys
    - Relational integrity constraints
    - Manipulating data: selection, projection, join, union, intersection, difference
- Components of a relational DBMS
    - An integrated, active data dictionary
    - The query optimizer

<u>Designing Relational Databases</u>

- A step-by-step approach and techniques
    - Developing the logical data model
    - Mapping the data model to the relational model
    - Specifying integrity constraints
    - Defining the data in the data dictionary
- Entity-relationship modeling
    - Capturing entities, attributes and identifiers
    - Describing relationships: one-to-one, one-to-many, many-to-many
    - Optional and mandatory relationships
    - Resolving many-to-many relationships for implementation
- Normalizing data to design tables
    - Avoiding update anomalies
    - Identifying functional dependencies
    - Applying rules for normalization
- Working with a CASE tool
    - Generating the SQL to build the database
    - Reverse engineering to capture the design of an existing database
- Physical database design
    - Assigning tables to disk files for performance and maintenance
    - Fragmenting large tables
    - Planned denormalization vs. accidental denormalization
    - Indexing for performance and integrity

<u>Building and Querying a Relational Database</u>

- Fundamentals of SQL
    - A dynamic and evolving language
    - ANSI and ISO standards
- Creating a relational database
    - Defining the database and its objects: tables, keys, views and indexes
    - Declaring integrity constraints
- Accessing the database with SQL

- o Querying the database to retrieve desired information
- o Updating data while maintaining database integrity
- Constructing and using views
    - o Defining views for simplicity and security
    - o Customizing windows into the database
    - o Querying and updating through views

The Future of Database Design

- Enforcing business rules for data integrity
    - o Defining declarative constraints
    - o Server-side programming in a procedural language
- Trends
    - o Modeling in analysis and design
    - o Focusing on business rules
    - o Creating an intelligent server

Lab Exercises: The attendees will practice:
  Analyzing an existing database with a CASE tool
  Developing data models
  Identifying entities, attributes and relationships
  Normalizing data to create stable table structures
  Exploiting a CASE tool to generate SQL
  Constructing simple SQL queries to access the database

System Analysis for Complex Systems

This course is designed to provide the BA with an understanding of the types of additional requirements and considerations that must be accounted for when preparing solutions that are made up of several components such as new and existing applications that must share or exchange data; emerging technologies such as cloud and mobile, technologies, or transitions of existing technology to new technology where there will be an impact to the user interface and functionality.

Duration: ½ Day

Learning Objectives

Upon completion of this course, attendees will be able to:

- Understand the implications of new technology on business requirements
- Create business requirements that will meet the goals and objectives of the project while effectively addressing issues related to the use of new technology

Course Outline

- New user types: If moving tasks from internal staff to the end user, user interface design may need to change to make it friendlier. Beyond design considerations, the actual usage may be different, too.
- New and changing user interfaces: Smart phones and tablet devices are only the tip of the iceberg. Who knows what the future may bring? Again, beyond design considerations, the actual usage may be different because new interfaces present opportunities for innovation.
- New interfaces to services: Subscriptions to services on the cloud or within a social media setting are possible. A competitive advantage can be gained by invoking newly available functionality or by combining functionality in new ways.
- New security measures: Making data accessible with a cloud environment or from a mobile device brings new security concerns and considerations that should be included in the business requirements.

ORGANIZATIONAL / PROCESS TRAINING

Organizational and Process Oriented courses are interdisciplinary courses that will be provided for all IT professionals in all State Agencies. The goal is to develop a common set of expectations and a framework for working together on IT projects regardless of which department and what project.

State of TN IT Professional Orientation Modules

These three (3) State of TN IT Professional Orientation Modules are provided in the Associate level training for all IT professionals and they would also be terrific courses to assist with training business professionals working within State Agencies, and Executives within the State who participate in planning for IT projects. Together these modules will be used to support the cultural shift within the State of TN IT environment to the desired culture of the NextGen IT Transformation. All three modules would become computer-based curriculum once the transformation is well underway. They will be taught in a classroom setting until there is evidence that the transformation has taken hold. The classroom setting will allow for the type of Q&A dialog that could be useful in supporting this transformation.

The specific course content will need to be closely coordinated with the State NextGen IT Transformation initiative. This is not an off-the-shelf series of modules. The learning objectives and course outlines below serve as a structure for the courses. Instructor must work closely with the State to communicate the specific messages of the initiative.

Duration: Each Module will be approximately 1 hour

Audience: All IT personnel, Agency leadership, Executives participating in IT project planning, may be relevant for vendors working in support of IT projects, products, or services.

Module #1: Orientation to TN IT Governance and Customer Service Mission

Learning Objectives

Upon completion of this course, attendees will be able to:

- Describe how IT operations and service delivery is organized within the State of TN
- Describe the types of products and services State Agencies can receive from State IT including OIR and BSD
- Describe the importance and practice of the customer-service mission
- Describe their personal responsibilities for working in the State of TN NextGen IT environment.

Course Outline

- Overview of the State of TN IT Governance
    - o Offices, Departments providing IT services and products
    - o Relationship between Agencies and State IT Departments and Offices
    - o Role of Vendors in supporting IT products and services
    - o Role of IT in working with Vendors
    - o Introduction to OIR and BSD, and the types of services and products Agencies are able to receive from these State IT offices.
- The Customer-Service Mission - serving the people of the great State of TN
    - o Who are State IT customers?
    - o The importance of personal responsibility, integrity, and discipline in all IT professionals.
- The NextGen IT Environment
    - o Expectations for team work, quality, collaboration, respect for others, and professional behavior
    - o Day-to-day, work-specific impact of the customer-service mission on project teams, and IT professionals.
    - o IT professional development plans including the new learning program

Module #2: Orientation to TN Business Solutions Methodology (TBSM)

The purpose of this module is to establish a common understanding of the life of a project within the State of TN, and to increase understanding of how the participants in the class fit into the project team, no matter if they are part of the technical team, a customer, an end user, a business manager, or a vendor.

Learning Objectives

Upon completion of this course, attendees will be able to:

- Describe at a high level how projects are planned, designed, executed, and operationalized within the State.
- Describe the primary types of projects the State of TN is likely to plan and execute
- Recognize where the work they typically do fits into the project life.

Course Outline
- High level introduction to the TBSM
- Why we have the TBSM
- How to assess support from BSD to further understand the methodology and use templates
- Different Types of State projects and how to approach these projects using the TBSM

Module #3: Orientation to TN Standard Software Development Process

Software Development Processes provide a framework for all software development projects regardless of size, complexity, and risk. The focus of this course is to establish an expectation for all software development projects to utilize a basic set of processes to ensure quality deliverables.

Learning Objectives

Upon completion of this course, attendees will be able to:

- Describe the expectation that all projects use standard processes
- Describe in general terms how the processes are applicable no matter what SD methodology is implemented on a project.
- Identify the SD processes and give a high level description of the purpose of the process.

Course Outline
- Fundamentals of State IT Standard Software Development Processes
- Purpose behind State establishing minimal processes that are required for all SD projects
    - o Benefits of using the State of TN Standard Software Development Processes
    - o Examples of the kinds of trouble projects can experience when standard process is not utilized to structure the work.
- Difference between a Project lifecycle, Software Development Lifecycle, and the State's Standard Software Development Processes, and how they synch-up, (example where the SD process would fit in a Project lifecycle).
- High level description of each process and where it is used in the Software Development Lifecycle
- How to get additional training when needed

Fundamentals of TN Standard Software Development Processes

This series of modules is a part of the curriculum path for many IT job classifications that participate in these processes. They will dive deeper into software development, maintenance and operations processes. These modules will be 1-2 hours in length and can be web-based. The content should be relevant regardless of the software development lifecycle meaning that there are tools, techniques, practices that are relevant and tailor-able regardless if the development model is waterfall or agile or rapid prototyping. The difference is these approaches can be explained in the modules and even the benefits of using the different approaches and tools depending on the type of project.

These modules will not give a person mastery of the processes and tools. They are designed to increase understanding and ability communicate, plan, and follow through as a project team.

Modules:

- Analysis
- Defining Requirements
- Design
    - Diagrams
- Estimation
- Establishing and Migrating between Development, QA, and Production Environments
- Configuration Management
- Change Management.
- Testing and Verification
- Deploying to Production
- Production Operations
- Enhancements and Maintenance

It will be important to point participants toward tools and resources that can be used just-in-time because Junior Project Managers will not engage in these activities on a daily basis and they will lose what they learn unless they have access to resources when needed.

Personal Organization and Time Management

Personal Organization and Time Management are critical for BA success. The course will provide techniques, tips, and opportunities to practice using these skills in tasks and scenarios independently and with other participants.

Duration: One Day

Learning Objectives

Upon completion of this course, attendees will be able to:

- Set S.M.A.R.T. goals
- Prioritize goals effectively
- Understand the needs of different personality styles and how to work with them
- Handle high pressure, crisis situations
- Prioritize time and tasks effectively
- Achieve better results through effective planning
- Overcome procrastination
- Estimate time and activities required for reaching goals
- Handle paperwork effectively
- Manage resources more efficiently
- Organize workspace
- Use time management tools more effectively
- Become effective at delegating for maximum productivity

Course Outline

- Working with Goals
    - S.M.A.R.T. (Specific, Measurable, Attainable, Relevant, Time-Bound) Goals
    - Prioritizing Goals
- Working with Others
    - Personality Types A, B, C, and D
    - Recognizing and Working With Different Personality Types
    - Team Dynamics that Affect Timely Deliverables
    - Handling Crisis Situations and Project Delays

- Prioritizing Time & Tasks
    - The 80/20 Rule
    - The Urgent/Important Matrix
    - Assertiveness
- Planning Wisely
    - Creating a Productivity Journal
    - Glass Jar: Rocks, Pebbles, Sand and Water
    - Estimating Time and Activities
    - Processing Required Paperwork
    - Managing Available Resources
- Organizing Workspace
    - De-clutter
    - Managing Workflow
    - Dealing with E-mail
    - Using Calendars
- Delegating Made Easy
    - When to Delegate
    - How to Delegate
    - Managing Responsibility when Delegated

Lab Exercise: Participants will be given the opportunity to practice using techniques presented for organizing their work to increase efficiency and gain awareness through timed activities of how long tasks take for them individually and for the group.

TN IT Governance and TBSM

This course is a follow-up to the information presented during the State of TN IT Orientation. IT will provide a detailed overview of the full life of a project and will provide enough detail that all persons working as PMs, Business Managers, and BAs would be able to recognize the project phases and how each is managed within Tennessee.

Duration: One or Two Days

Lesson Objectives

Upon completion of this course, the attendees will be able to:
- Understand the Tennessee Business Solutions Methodology
- Produce documentation required by the TBSM
- Manage a small, low risk project with supervision
- Understand the basics of working on a complex project
- Work effectively with vendors

Course Outline
- Overview of Tennessee Business Solutions Methodology (TBSM)
    - Stages
    - Processes
    - Documents
        - Project Charter
        - Project Management Plan
        - Scope Management Plan
        - Requirements Management Plan
        - Communication Management Plan
- Pre-Engagement
    - Initial Project Assessment
    - Facilitate Solution Vision Sessions
    - Assist Agency in Documenting Business Need & Preliminary Business Case

- Project Initiation
  - Identify Stakeholders
  - Develop/Refine Project Charter
- Project Planning
  - Develop Project Management Plan
  - Initiate Build Book Process
  - Collect Requirements
  - Maintain Requirement For Re-use
  - Validate, Define Solution and Scope
  - Create Work Breakdown Structure
  - Define Activities
  - Estimate Activity Resources and Durations
  - Develop Schedule
  - Estimate Costs and Determine Budget
  - Plan Quality
  - Develop HR Plan
  - Plan Communications
  - Plan Risk Management
  - Identify Risks, Perform Analysis and Response
  - Plan Procurements
  - Plan Implementation
- Project Execution
  - Direct and Manage Project Execution
  - Perform Quality Assurance
  - Acquire, Develop & Manage Project Team
  - Distribute Information
  - Manage Stakeholder Expectations
  - Conduct Procurements
- Project Monitoring & Control
  - Monitor and Control Project Work
  - Perform Integrated Change Control
  - Verify and Control Scope
  - Control Schedule
  - Control Costs
  - Perform Quality Control
  - Report Performance
  - Monitor and Control Risks
  - Administer Procurements
- Project Closing
  - Close Project and Procurements
  - Document Lessons Learned
- Working with Complex Projects
  - How does the smaller portion fit?
  - Where are the full project documents?
  - Recognizing when the portion and the whole are not in synch
    - Scope
    - Schedule
- Working with Vendors
  - Communicating
  - Coordinating

Business Process Improvement and Re-engineering

This course will be modeled after the existing OIR Business Process Reengineering course with an added topic of the lessons that can be learned from the field of Organizational Change Management

COMMUNICATION COURSE DESCRIPTIONS

Note: The facilitators will be very skilled at establishing a safe, collaborative environment themselves so that the role-play and exercises are non-threatening and successful. In all courses such as this one the facilitators must recognize that they are teaching technical persons these 'soft' skills that do not always come as naturally as technical skills. Participants are likely to be reluctant and maybe intimidated to participate in role-play and interactive activities.

Resources for Improving Communication Knowledge and Skill

This set of computer-based training modules will give State IT personnel access to training that will allow them to advance their core communication skills and abilities. The modules described below provide an example of the kinds of modules the State would like to have available for their BA personnel. The actual offering from a training vendor may be more extensive. *These courses and others already described in other CPs will be combined into one set of modules that will be available to all IT personnel.*

Duration: Each module in a series will be a stand along module and should be no more than 1 hour.

Audience: These modules will be applicable to any IT personnel including those who are technically focused and those who are business focused. These modules will be available to anyone as electives that they can select on their own or as directed by their managers as part of their Individual Development Plan.

Active Listening and Reading with Increased Comprehension

Learning Objectives

Upon completion of one or more modules, participants will be able to:

- Identify ways to verify ideas and thoughts in verbal and written communication
- Identify ways to improve their own reading and listening comprehension
- Identify the limitations of written communication and recognize the kinds of communications that should be verified on a project.

Course Outline

- How we assign meaning to written and verbal communications.
- The importance of the context of the information communicated
- Validating understanding of written and verbal communications.
- Recognize the limitations of written communication
- Recognize the importance of non-verbal communication and the impact on comprehension
- How to increase understanding through techniques such as repeating back, asking questions, asking for an example of what is being described…never assuming and always checking for accurate comprehension.

Content will be IT product and service related and will include communications that might be received from a customer, a technical team member, another BA, or a vendor.

Writing Project Management / BA Documentation

Learning Objectives

Upon completion of one or more modules, participants will be able to identify ways to improve their documentation accuracy, relevance, and speed.

Course Outline

- How to organize thoughts
- Identify business and technical audience
- Use professional grammar, fonts, and standard terminology.

- Techniques and tips to improve writing
    - Accuracy
    - Relevance
    - Speed.
- Review of good documentation and poor documentation

Conducting a Successful Meeting

Instruction and practice opportunities will be provided to help the Associate BA learn how to run a successful meeting. Topics will include how to set up the agenda, how to manage the flow of discussion, what to talk about before the meeting with individuals, and how to table discussions for after the meeting, how to start and end on time, how to listen to the information provided and when to make decisions in the meeting, and what to do to follow-up from a meeting. At this level the BA could take a computer-based training recognizing that there will be opportunities in future classes to practice and improve this skill.

Learning Objectives

Upon completion of this course, the attendees will be able to:

- Successfully plan, prepare and conduct a productive meeting and follow-up post meeting

Course Outline

- Setting up an Agenda
- Pre-Meeting Communication
- Managing Flow of Discussion
- Tabling Discussions
- Time Management
- Decision Making
- Follow-up

Communicating Effectively with People in Authority

Communicating with the supervisor, upper management, managers from other Agencies, or even Vendor managers can be intimidating but there are techniques and a customer-service mind-set that can really help an Associate BA give and receive information from people in authority in an effective way. At this level the BA could take a computer-based training recognizing that there will be opportunities in future classes to practice and improve this skill.

Learning Objectives

Upon completion of this course, the attendees will be able to:

- Successfully communicate with those in authority

Course Outline
- Email/Written Communications
- Face-to-face Communications
- Providing Project Status
- Making Short Presentations
- Negotiation/Persuasion

Customer Service Principles and Processes

In this course, participants will learn and use principles and processes for providing customer and personal services.

The format for the course should be interactive and dynamic with opportunities for role-play, perhaps watching scenarios of worker interactions and discussion of how the values transfer to the work environment and the work produced.

Duration: One Day

Learning Objectives

Upon completion of this course, the attendees will be able to:
- Conduct a customer needs assessment
- Recognize that customers do not always know how to identify or fully express what they want and learn techniques for identifying important themes, critical priorities, driving issues that are bringing them to request an IT solution.
- Recognize the difference between the customer's description of functionality, inputs and outputs, and the final product/services specifications, design, code, and components. Non-technical customers do not know how to ask for technical elements needed to give them the functionality and user interface and security, and privacy, and accessibility and other things that they want. Learn techniques for guiding the customer to provide information that a design team will need to know.
- Utilize techniques for opening communication and managing expectations right from the first conversation
- Show, promote, and sell products or services
- Understand what quality standards are and how to meet them
- Evaluate customer satisfaction
- Identify barriers to maintaining a customer service mindset as a PM
- Further establish critical values for the State IT environment such as pride in work, strong work ethic, effective solutions, cost effective results
- Actualize and internalize these values personally and professionally

Course Outline
- Customer Needs Assessment
  - What is a Customer Needs Assessment?
  - How can it be obtained?
- Interviewing the Customer
  - What do they want?
  - What do they need?
  - Determining Priorities
- Communication with Customer
  - Extracting Essential Information
  - Guiding the Customer to Manageable Solutions
- Marketing/Selling the Product or Service
  - Marketing Strategies and Tactics
  - Product Demonstration
  - Sales Techniques
  - Sales Control Systems
- Quality Standards
  - What are Quality Standards?
  - How can Quality Standards be met?
- Evaluate Customer Satisfaction
  - What determines Customer Satisfaction?
  - How can it be measured?
- Maintaining Customer Service Mindset

  o   What are the barriers to the mindset?
  o   How can these barriers be overcome?
 •   Workplace Values
  o   What are they?
  o   How are they promoted?
  o   How can they be changed?

Becoming a Strong, Confidant, Service-Oriented Communicator

This will be a competency building lab where the facilitator establishes a safe learning environment where people are able to discuss challenging communication scenarios and identify solutions, practicing through role-play, observing the facilitator demonstrating techniques for listening, de-escalating, re-focusing without ignoring what's being communicated, recognizing non-verbal communications, listening for what is not being said, sharing information with upper management, stressing and repeating the importance of listening over speaking. The focus will be on communicating with respect and a strong emphasis on collaboration, establishing trust, maintaining integrity, and developing relationships. This course would be a good opportunity for experienced management to come and interact at a point in the class, sharing lessons-learned on their own journey as managers and building relationships with Junior level BAs.

Duration: ½ Day

Learning Objectives

Upon completion of this course, the attendees will be able to:
 •   Listen with focus
 •   Recognize non-verbal communications
 •   Communicate with respect
 •   Collaborate effectively

This is a lab course with no stated course outline.

Improving Understanding between Technical and Non-Technical Project Stakeholders

This course is really a great opportunity to bring technical and non-technical team members into a workshop environment where with the help of the facilitator the common problems and barriers to successful communication, and understanding are identified and solutions are presented and practiced. The best approach to this course would be to have mini-movies of examples of ineffective and effective interactions between technical and non-technical people that the class can discuss, followed by role-playing verbal exchanges – especially using role-swapping exercises. Techniques for interpretation, translating, verifying understanding, preparing for presentations/meetings, and facilitating discussions should be presented and practiced. The desired outcome is that all participants will have successful interchanges of information so that project communication will improve and the ultimate deliverables for customers will have a better chance to meet the mark.

Duration: ½ Day

Learning Objectives

Upon completion of this course, attendees will be able to:

 •   Communicate effectively with non-technical colleagues
 •   Illustrate methodologies or concepts when appropriate to aid in recipient understanding
 •   Present information effectively while actively listening to feedback
 •   Adjust communication as needed to further clarify ambiguous subjects/topics
 •   Present non-technical colleagues with understandable technical options

Course Outline

- How to use Analogies Effectively
- Limit Your Message to "Need-to-Know" Information
- Display Your Thinking Visually
- Involve the Listeners
- Manage the Intimidation
- Structure Your Message Effectively
- Avoid Projecting Opinion as Fact
- Helping Non-Technical People Making Sound Technical Decisions

Lab exercises: The exercises for this course will provide the attendees with opportunities to create communication documents (emails, memos, presentations) in a manner that non-technical staff can comprehend. Short verbal presentations and/or conversations will also be role-played.

Conflict Management and Negotiation

An Intermediate BA is going to need the ability to intervene in troubled projects, address unrealistic expectations, resolve disputes between the State and Vendors, and deal with conflicts that may span multiple State Agencies and organizations. This course should provide techniques for bringing people together to resolve conflicts and determine a path forward. It will also be important for the instructor to include instruction about how to recognize and understand contracts and conflicting priorities, political issues, and when to seek additional support from other experts.

Duration: 2 Days

Learning Objectives

Upon completion of this course, the attendees will be able to:
- Recognize how our own attitudes and actions impact others
- Find new and effective techniques for managing negative emotions in others and self
- Understand the function of communication through exploring its processes
- Apply assertive verbal skills for effective feedback strategies
- Apply critical listening skills
- Develop awareness of how effective non-verbal messages are communicated
- Describe the main sources of conflict
- Develop coping strategies for dealing with difficult people and difficult situations
- Identify those times when you have the right to walk away from a difficult situation
- Explain the appropriate techniques in inter-personal conflict management
- Describe the appropriate action plan and strategies to manage inter-group conflict
- Explain the attributes of an effective manager
- Prepare for negotiations
- Engage in negotiations
- Conclude negotiations
- Evaluate negotiations

Course Outline
- What is conflict?
- The main sources of conflict
- Different types of conflicts
- Key questions which clarify conflict causes
- Conflict stages
- Listening continuum

- Attitudes towards conflict
- The Dual Concern Model
- Understanding where my attitude to conflict is rooted
- Tools for improved communication
- What gives people power
- Problem solving
- Management techniques in industrial conflicts
- Tools for conflict analysis
- Inter-group conflict
- Stereotypes and prejudices
- Strategies for resolving inter-group conflict
- Negotiations
- The importance of negotiations and agreements
- Building the relationship
- Assertiveness
- Understanding the Negotiations process map
- Informing people about the negotiations process
- Useful questions for setting up a negotiations process
- Persuading through discussion
- Building trust
- Qualities of good negotiators
- Facilitating the negotiation process
- A comparison of negotiation styles
- Negotiations strategy
- Understanding different negotiation styles
- Negotiation mistakes to avoid
- Key soft skills in the negotiations process
- The mediation process
- The function of the mediator
- The goals of mediation
- Facilitation
- Conciliation
- Managing emotions
- Arbitration
- Designing a strong agreement

Advanced Team Dynamics

The focus of this course is to engage advanced personnel in techniques for working through difficulties and challenges of dysfunctional teams. It will be interactive, multi-disciplinary, and will address ways to overcome common problems such as poor performance, differing opinions, lack of communication, and lack of leadership. A dual purpose of making this course multi-disciplinary is to cross-train and increase understanding among various disciplines in State IT while providing the opportunity and facilitation to improve communication skills and abilities.

Duration: One Day

Learning Objectives

Upon completion of this course, attendees will be able to:

- Define and understand the sources of conflict
- Resolve conflicts using different strategies
- Identify their own personal conflict resolution style
- Understand the different bases of power and how to change them
- Apply influence and explore their relationships with others
- Provide conflict management training for others

Course Outline

- Definitions of Conflict
    - o Misconceptions about Conflict
    - o Sources of Conflict
    - o Positive and Negative Factors of Conflict
    - o Business Management and Conflict Resolution
- Conflict Mode Instrument
    - o Scoring and Interpretations
    - o Ways of Coping with Conflict
    - o Assumptions and Outcome of Conflict
- Influencing Others in a Problem-Solving Context
    - o Working Effectively with Team Members
    - o Managing Your Emotions, Information and Problems
    - o Tips For Effective Day to Day Conflicts
    - o Resolving Conflict before It Gets Out of Hand
    - o Managing Conflicts with Superiors and Subordinates
- Importance of Team Work
    - o Dealing with Dysfunctional Team Roles
    - o Managing Conflict in Teams
- Influence Inventory (Power Bases)
    - o Definitions of Influence and the Bases of Power
    - o Changing the Bases of Power
    - o Leadership Training for Influence and Power
    - o Training Development for Influence

Lab Exercises: The lab for this course will be interactive role-playing through situations presented in the exercises. Some of the situations included will be: slacking team member, conflict resolution, lack of communication, and lack of leadership.

PRACTICAL REASONING COURSE DESCRIPTIONS

Courses in this area of competency will expand upon the professional's ability to actively and skillfully conceptualize, apply, analyze, synthesize, and/or evaluate information gathered. It will also expand up the professional's ability to use these skills to create more effective, efficient, and appropriate deliverables; solve problems, and make decisions as necessary within their job classification.

Resources to Improve Practical Reasoning

This set of training modules will give State IT personnel access to ideas, tools, and methods to improve their ability to think critically, understand and solve problems more effectively, and make informed decisions. Many training vendors have extensive curriculum related to these topics so these modules are likely to come from a vendors existing course catalog. The lists below provide an example of the kinds of modules the State would like to have available for their personnel. The actual offering from a training vendor may be more extensive. These can be instructor-led, computer based, or lab courses.

Duration: Each module in a series will be a stand along module and should be no more than 1 hour.

Audience: These modules will be applicable to any IT personnel including those who are technically focused and those who are business focused. These modules will be available to anyone as electives that they can select on their own or as directed by their managers as part of their Individual Development Plan.

Critical Thinking Series

Learning Objectives

Upon completion of one or more modules, participants will be able to:

- Recognize how to think more logically,
- Identify ways to apply critical thinking methods to improve their own skills
- Identify ways to use critical thinking skills in their work

Course Outline

Topics for Modules will include but are not limited to:

- Organizing information – learning ways to organize information in a variety of ways
- Exploring ways to identify many possible options or alternatives to how information can be organized
- Methods for evaluating alternatives
- Evaluating data and finding the data most relevant to the task
- Drawing conclusions from information
- Identify what has not been stated when analyzing instructions, or steps in a process
- Developing originality and creative thinking
- Applying critical thinking techniques in the workplace
- Self-awareness – identifying strengths, and weaknesses, improving your own abilities.

Problem Solving Series

Learning Objectives

Upon completion of one or more modules, participants will be able to:

- Have an increased awareness of problem solving methods, tools and approaches
- Identify ways to use problem solving techniques to improve their work

Course Outline

Topics for Modules will include but are not limited to:

- Basic steps to solve a problem
- Finding and choosing tools and techniques to improve problem analysis
- Identifying and overcoming barriers to problem resolution
- Techniques for identifying and evaluating possible solutions
- Planning to implement a solution including ways to identify possible undesired outcomes and plan for contingencies
- Implementing a solution
- Evaluating the solution

Decision Making Series

Learning Objectives

Upon completion of one or more modules, participants will be able to:

- Recognize how to approach decision making more deliberately
- Recognize that there are tools to help with different types of decision making
- Identify ways to improve their own decision making in the workplace.

Course Outline

Topics for Modules will include but are not limited to:

- Approaches to decision making
- Finding and choosing tools and techniques to structure and support decision making (for example, Financial decision tools, making decisions with limited information)
- Identifying and dealing with your own biases

Judgment, Decision, and Analysis

BAs at this Intermediate level are required to make decisions and recommendations for actions that have significant impact on the project and the services provided by the State to the people of the State. This course will provide instruction on how to look at all the factors of cost, risk, benefits, customer objectives and other relevant factors, evaluate the information and make decisions about how to proceed. The emphasis will be on developing the thinking and analysis skills and abilities by teaching proven techniques and approaches.

The course will also emphasize risk identification, assessment, and mitigation strategies including ways to recognize and benefit from positive risk.

Duration: One Day

Learning Objectives

Upon completion of this course, the attendees will be able to:
- Make good decisions based upon relevant information
- Identify risks and successfully assess and mitigate them

Course Outline

- The Problems with Instinctive Decision Making
    - Factors which influence our natural decision-making
    - Quality problems with intuitive decision-making processes
- What is Reasoned Decision Making?
    - What are the barriers to reasoning well?
    - What are the qualities of reasoned decision processes?
- The Natural Barriers to Sound Reasoning
    - Emotional state
    - Mental shortcuts
    - Patterning
    - Bias and assumptions
    - Mind set
    - Need for explanations
    - Narrow focus
    - Stubbornness
- An Introduction to Critical Thinking
    - Are you a critical thinker?
    - What is critical thinking?
    - Why do we need critical thinking?
    - Developing as a critical thinker
    - Second-order thinking
- The Structure of Reasoning
    - Purpose
    - Point of view
    - Assumptions
    - Implications and consequences
    - Data, facts, and experience
    - Inferences
    - Concepts
    - Questions
- Standards of Critical Thinking
    - Clarity
    - Relevance
    - Logic
    - Accuracy
    - Depth
    - Significance
    - Precision
    - Breadth
    - Fairness
    - Ethics of critical thinkers
- Problem Analysis and Decision Making - Best Practices
    - Slow down
    - Think critically
    - Impose creativity
    - Clarify purpose
    - Focus on major factors
    - Actively focus in and out
    - Structure the selection process
    - Take a step back-does the decision make sense?
- Imposing Creativity on the Choice of Solutions

- o Slow down!
- o Suspend judgment
- o Imagine courageously
- o Think beyond conventional wisdom
- o Question everything and everyone
- o Imagine backwards from the ideal
- o Restate the problem
- o Dismantle the problem
- Analytical Decision-Making Techniques
  - o Sequencing
  - o Sorting
  - o Time lines
  - o Matrixes
  - o Decision trees
  - o Ranking
  - o Probability
- Risk planning
  - o Identify the risks
  - o Categorize the risks
- Risk responses
  - o Avoidance
  - o Mitigation
  - o Transference
  - o Acceptance
- Tracking risks
  - o Sensitizing the team
  - o Diagnosing risk symptoms
  - o Updating the risk analysis

Collaborative Troubleshooting/Problem Solving/Decision Making

Maximizing the benefits of team collective reasoning when there is a technical dilemma is a core skill for technical leadership. People tend to fall into 'hero' mode – taking on the challenge single handedly when the situation really warrants a multi-disciplinary look, or 'hiding' mode – hoping someone else gets assigned to fix the problem or solve the dilemma. People are either afraid of blame or looking at the problem as an opportunity to shine. So how does a leader determine if the problem needs individual or team investigation? When does someone need help and how do you ensure they get the right expertise to find the problem? How does a leader establish a synergy of team effort to tackle difficult problem, focusing the energy on the best possible solution? Techniques and approaches to collaboration will be explored, practiced through role-play and discussion of scenarios.

Duration: 1 day

Learning Objectives

Upon completion of this course, attendees will be able to:

- Foster collaborative thinking and problem solving
- Establish an environment conducive to collaboration
- Effectively manage discussion in a group
- Identify barriers to effective teamwork

Course Outline

- Learn about the benefits of collaborative thinking and problem solving
- Identify ways to bring a team together to collaborate

- o Establishing the proper environment within the space and between participants
- o Communicating the time allotted, scope of effort, methods to be used
- Demonstrate understanding of ways to encourage participation
    - o Encouraging idea sharing, open discussion
    - o Keeping the group on topic
- Identify barriers to collaboration and ways to overcome these barriers
    - o Overcoming 'group think'
    - o Identifying and addressing team biases
- Maximizing the efforts of established teams
    - o Getting to know each other's strengths and how to encourage those strengths

ADMINISTRATION / MANAGEMENT / LEADERSHIP COURSE DESCRIPTIONS

Performing Cultural Assessment

It is critical for an Intermediate PM to have expert knowledge of the State Agency the project is for. This includes information about the primary end users, the Agency leadership, the risks, challenges, objectives, and mission of the business. Without this insight the PM will be blind to some types of issues that could become problematic.

Duration: One Day

Lesson Objectives

Upon completion of this course, the attendees will be able to:
- Identify the organizational culture for a given team or agency
- Adapt to the culture to achieve the maximum effectiveness and productivity
- Effect change in the culture when needed

Course Outline
- Cultural Assessment
    - What is Organizational Culture?
        - Values
        - Visions
        - Norms
        - Working Language
        - Systems
        - Symbols
        - Beliefs
        - Habits
        - Collective Behaviors
        - Collective Assumptions
    - Hofstede Theory
        - Power Distance
        - Uncertainty Avoidance
        - Individualism –vs- Collectivism
        - Long –vs- Short-Term Orientation
    - O'Reilly, Chatman, and Caldwell Model
        - Innovation
        - Stability
        - Respect for People
        - Outcome Orientation
        - Attention to Detail
        - Team Orientation
        - Aggressiveness
    - Daniel Denison's Model
        - Mission
        - Adaptability
        - Involvement
        - Consistency
    - Factors and Elements
        - The Paradigm
        - Control Systems
        - Organizational Structures

- Power Structures
- Symbols
- Rituals and Routines
- Stories and Myths
  - o Healthy Organizational Cultures
    - Acceptance and appreciation for diversity
    - Regard for and fair treatment of each employee as well as respect for each employee's contribution to the company
    - Employee pride and enthusiasm for the organization and the work performed
    - Equal opportunity for each employee to realize their full potential within the company
    - Strong communication with all employees regarding policies and company issues
    - Strong company leaders with a strong sense of direction and purpose
    - Ability to compete in industry innovation and customer service, as well as price
    - Lower than average turnover rates (perpetuated by a healthy culture)
    - Investment in learning, training, and employee knowledge
  - o Constructive Cultures
    - Achievement
    - Self-Actualizing
    - Humanistic-Encouraging
    - Affiliative
  - o Passive Defensive Cultures
    - Approval
    - Conventional
    - Dependent
    - Avoidance
  - o Aggressive Defensive Cultures
    - Oppositional
    - Power
    - Competitive
    - Perfectionistic
  - o How to Adapt to the Organizational Culture
  - o How to Influence Change in the Organizational Culture when Appropriate

MS Project

Participants will learn the how to set-up and work with Project details in MS Project, including how to set up a Work Breakdown Structure (WBS), plan for resources, and track completion.

Duration: varied

Learning Objectives

Upon course completion, attendees will be able to:

- Complete tasks necessary for business analysis using Microsoft Project.

Course Outline

- Defined by Microsoft as presented at: http://office.microsoft.com/en-us/training-FX101782702.aspx

Learning to Teach and Mentor Others

In the past, coaching was something that managers were involved in. Today, individuals from all over the world have seen the benefits of coaching and mentoring. It is no longer just available to the few but can benefit many. In this course, we start by exploring the most basic definition of coaching - the formal or informal process of supporting an individual or group to achieve specified goals, objectives or results. The

course then continues to examine the area of mentoring. The course will also explore how the achievement of goals is increased by using a wide range of approaches or techniques in coaching/mentoring.

Duration: One Day

Learning Objectives

Upon completion of this course, the attendees will be able to:
- Explain the benefits of coaching and mentoring
- Effectively coach a co-worker
- Effectively mentor a co-worker
- Recognize effective curriculum and training initiatives
- Accurately measure training outcomes

Course Outline
- Who are the beneficiaries of Coaching and Mentoring?
    - The Coach/Mentor
    - The Employee
    - The Department
    - The Organization
- Coaching
    - Definition
    - What is Coaching?
    - Characteristics of an Effective Coach
    - Attitudes For Effective Coaching
    - Types of Coaching
    - Coaching For Effective Actions
- Designing a Coaching Program
    - The Coaching Concept
- Skills For Effective Coaching
    - Communication
    - Providing Feedback
    - Giving Instruction
- Mentoring
    - Definition
    - Differences between Coaching & Mentoring?
    - Informal Mentoring
    - Formal Mentoring
    - Characteristics of Great Mentors
    - Why Use Formal Mentoring
    - Mentoring and Business Objectives
- Piloting a Mentoring Program
- Principles and Methods for Curriculum and Training Design
- Principles and Methods for Instruction Delivered to Individuals and Groups
- Measurement of Training Outcomes

Team Building

This leadership course will be an invaluable course for personnel who are taking on a leadership role on their team. The course will provide new leaders with the core knowledge, skills, and abilities to provide direction, encourage participation, establish a 'safe' environment for sharing ideas, respect, and valuing the contributions of everyone. The course will include instruction as well as opportunity for discussion, role-play, and review of effective and ineffective leadership styles. A major objective will be to train leaders to 'lead by walking around' – making face-to-face connections, or at least talking on the phone when team members are remote, understanding that important information

about how things are really progressing can only be gained by listening to verbal and non-verbal communications, and by establishing relationships.

Duration: One Day

Learning Objectives

Upon completion of this course, attendees will be able to:

- Apply different communication strategies to maximize motivation
- Develop and maintain high levels of trust with team members
- Enhance individual and team motivation on a consistent basis
- Lead by example with competence and trust based credibility
- Eradicate issues relating to inferior quality and save money
- Deliver higher-quality outputs more quickly and efficiently
- Deliver effective praise and reprimand sessions to reinforce standards and performance
- Create a working environment that promotes high levels of collaboration and commitment
- Set and agree on challenging performance targets with team members – and achieve them
- Effectively resolve poor performance issues within the team
- Navigate change more effectively while maintaining team focus and motivation
- Create an effective action plan to maximize motivation and performance

Course Outline

- Communication
- Developing Trust
- Enhancing Motivation
- Leading by Example
- Dealing with Issues
- Improving Efficiency
- Praise and Reprimand Sessions
- Creating an Environment for Collaboration and Commitment
- Setting Performance Targets
- Resolving Poor Performance Issues
- Navigating Change
- Creating an Action Plan

Lab Exercises: This is a highly interactive class with lab exercises that will include the opportunity for discussion, role-play, and review of effective and ineffective leadership styles.

Law and Government

This course designed for State of TN BAs will provide training about the State of TN laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process and why knowledge of how government works is relevant to the advancing BA.

Duration: One Day

Learning Objectives

Upon completion of this course, the attendees will be able to:
- Locate applicable state and federal laws
- Locate applicable court procedures and precedents
- Locate applicable state and federal government regulations
- Locate applicable executive orders
- Locate state agency policies, practices, and standards
- Understand the state of TN political process

Course Outline

- Locating Applicable State Laws in TN Code Annotated
- Locating Applicable Federal Laws
- Locating Applicable Court Procedures and Precedents
- Locating Applicable State and Federal Government Regulations
- Locating Applicable Executive Orders
- Locating Agency Policies, Practices, and Standards
- The State of Tennessee Political Process

Advanced Human Resources and Labor Relations Issues

The Senior BA is beginning to take on a more advanced level of management and may not only manage Projects but may be more involved in managing people and /or elements of State Agency operations. This course will give the BA advanced exposure to the principles and procedures for personnel recruitment, selection, training, compensation and benefits, labor relations and negotiation, and personnel information systems.

Duration: 2 Days

Learning Objectives

Upon completion of this course, the attendees will be able to:
- Effectively review prospective employees' resumes
- Effectively interview prospective employees
- Supervise junior project managers
- Develop job plans including S.M.A.R.T. goals
- Conduct performance evaluations
- Effectively perform labor relations
- Comply with State of TN Human Resources policies

Course Outline

- Finding Good Candidates
  - Screening Resumes
  - Interviewing Skills
- Supervising Junior Project Managers
  - Communication
  - Feedback
  - Coaching
  - Mentoring
- Professional Development
  - Job Plans
    - S.M.A.R.T. Goals
  - Performance Evaluations
- Labor Relations
  - Conflict Resolution
  - Negotiation
- State of TN Human Resources Policies

Public Safety and Privacy

Maintaining public safety and ensuring protection of privacy are key missions for state governments. This course will give BAs the knowledge of State of TN relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions. In addition, the course will provide examples of how IT products and services can cause

inadvertent breaches in public safety and protection of privacy and the techniques, methods, and tools IT professionals can use to prevent these breaches and/or mitigate the risks of a breach.

Duration: ½ Day

Learning Objectives

Upon completion of this course, the attendees will be able to:
- Understand the current state of TN and federal privacy policies and standards
- Understand the privacy considerations that need to be given to the development of IT applications
- Understand the security involved to maintain privacy within an IT application environment
- Identify potential risks in security and/or privacy in an IT project
- Mitigate the risk of security and/or privacy breaches in an IT project

Course Outline
- State of TN and Federal Privacy Policies
  - HIPPA
  - Personnel Information
- Privacy Considerations in IT Applications
- Security in IT Applications
- Identifying Potential Risks
- Mitigating Risk of Breach

Advancing Your Business Acumen

Senior Business Analysts are working now at a level of complexity that demands a keenness and quickness in understanding and dealing with a business situation. One of the reasons large enterprise IT projects fail to meet the mark is that they take time to produce. The IT world is in a constant state of change. The time from initial project planning to delivery can easily be over a year. Meanwhile, Agencies' priorities will have shifted, new regulations come into play, and financial implications change. Senior Business Analysts need to know how to stay current, how to look ahead to the implications of changes, and how to make tough decisions in that do impact the Project, the State, and the People. This course will help Senior Business Analysts understand techniques and approaches for developing the enterprise level awareness of the business environment view necessary to successfully navigate and lead in this executive level environment.

Duration: 2 Days

Lesson Objectives

Upon completion of this course, the attendees will be able to:
- Find needed information
- Stay current on state government and agency policies and protocols that will affect a project
- Analyze change within the organization that will affect a project
- Effectively incorporate change management into a project as required
- Provide mentoring to less advanced BAs.

Course Outline

- Identifying Resources for Advanced Continual Learning
- Maintaining Current Knowledge of State Government and Governance
  - Recognizing Organizational Culture Changes
  - Legislative Issues
  - Agency Policies
  - Agency Operations
- Analyzing Change and Its Effect on Processes, Practices, and Projects
  - Effect on Schedule
  - Effect on Budget

- o Effect on Scope
- o Effect on Requirements
- Change Management
- Provide Mentoring to less Advanced BAs.